

REMARKS

Applicant wishes to thank the Examiner for his careful review of this application. Please reconsider this application in view of the above amendments and the following remarks.

Disposition of the claims

Claims 1-3, 5-8, and 10-16 are currently pending. Claims 1, 5, and 10 are independent, the remaining claims depend, directly or indirectly, from the independent claims. Claims 1, 2, 5, 6, 8, and 10 are currently amended. Claims 14-16 are newly added.

Amendments of the claims

Independent claims 1, 5, and 10 have been amended in this Reply to include limitations that further clarify the claimed invention. Specifically, the claims as amended now recite the types of simulation data to be taken as input and the types of summary data to be generated from the method. Amendments to the dependent claims recite further limitations directed to the steps of computation to be performed in generating the summary data. Support for amendments to the independent claims can be found, for example, in Figures 1 and 2 and the associated text. In particular, support for the types of summary data to be generated can be found in paragraph [0016] and Figure 3. Support for claim 2 can be found in paragraph [0017]. Support for claim 6 can be found in paragraph [0018]. No new matter has been added.

Newly added claims 14 – 16 recite further limitations of independent claims 1, 5, and 10 respectively. Support for the “automatic detection schemes” limitation can be found, for example, in paragraphs [0018] – [0024]. No new matter has been added.

Claim rejections under 35 U.S.C §101

Claims 1-3, 5-8, and 10-12 are rejected under 35 U.S.C. §101 as being directed to a method that produces non-tangible results. Specifically, the Examiner asserts that because the claims read on an abstract idea with little or no post-solution activity, the claims are, therefore, considered unpatentable.

In response, independent claims 1, 5, and 10 have been amended to recite a final step of reporting the summary data. As amended, the reporting step outputs the results of the computation performed in the generating step in the form of summary data. Applicant submits that the summary data are “tangible” because a person performing the method as claimed will obtain a set of summary data derived from processing the raw output of a power simulator that characterizes the behavior of a modeled chip. Such summary data represent real physical properties, are accessible and useful to a user, and, for all practical purposes, are tangible. Thus, the independent claims as amended satisfy the “tangible result” requirement of 35 U.S.C. §101. Dependent claims 2-3, 6-8, and 11-12 are also patentable at least for the same reason.

Newly added claims 14-16 are dependent claims of independent claims 1, 5, and 10, respectively, reciting further limitations of their respective independent claims. Because they merely recite further limitations directed to the way the input data are processed, they also produce tangible results in the form of reported summary data. Thus, they also satisfy the “tangible result” requirement of 35 U.S.C. §101.

In view of the above, withdrawal of this rejection is respectfully requested.

Claim rejections under 35 U.S.C. 102

Claims 1-3, 5-8, and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Bogliodo *et al.* (“Bogliodo”). Independent claims 1, 5, and 10 have been amended in this Reply. To the extent that this rejection still applies, the rejection is respectfully traversed as follows:

Bogliodo discloses a symbolic model of CMOS gates to capture the dependence of power consumption and current flows on input patterns and fan-in/fan-out conditions. Bogliodo also disclosed a web-based interface to the simulator for graphically interacting with the simulator and presenting simulation results (abstract).

With regard to independent claim 1, the claim, as amended, recites a method for analyzing a power modeling simulation comprising the steps of receiving simulated power values from the power modeling simulator, generating a set of summary data from the power value data, and reporting the summary data. To generate the summary data, the method requires computing at least one type of summary data selected from single-cycle summary, multi-cycle summary, and multi-cycle derivative data, wherein computation for each type of summary data comprises computing a characteristic factor for the respective type of summary data.

The claim, as amended, is exclusively directed to the processing and analysis of power value data from a power modeling simulation. Bogliodo, on the other hand, only describes a gate-level symbolic logic-based power simulator that outputs power/current statistics, probability distributions, and time-domain signal/current waveforms (page 486, right column, third paragraph, and figure 13); it is completely silent as to any processing or summarizing of the activities of the simulator output.

Furthermore, in this instant Office Action, the Examiner has cited several paragraphs from Bogliodo as allegedly disclosing all limitations of claim 1. However, upon a careful review of Bogliodo, Applicant submits that all the paragraphs cited by the Examiner are, in fact, directed to the simulator only and *not* to processing of the simulator output. For example, the Examiner cited page 484, left column, 3rd paragraph, as meeting the limitation of “receiving a plurality of values of power data from a power modeling simulator” when, in fact, the cited paragraph merely describes the programming implementation of a power/current simulator called PPP. It does not show or suggest “receiving a plurality of values of power data from a power modeling simulator.” Similarly, page 475, right column, 3rd paragraph, discloses an example of an OR logic gate transition and the associated considerations for energy requirement in such a transition. It does not show or suggest “generating summary data,” as purported by the Examiner. Page 485, left column, 2nd paragraph, discloses that the average power consumption estimated by HSPICE and by PPP is obtained by simply dividing the supply energy by the simulation time. Bogliodo does not disclose a summary data computed based on a power value data such as MIN, TYP, MAX, or TypMAX. Finally, table 1 presents a comparison between the performance of PPP and HSPICE, not a summary of a power modeling simulation as recited in amended claim 1.

Because Bogliodo does not show or teach each and every limitation of claim 1, claim 1 is patentable over Bogliodo. Dependent claims 2-3 and newly added claim 14 are also patentable over Bogliodo for at least the same reasons.

With regard to independent claim 5, the claim, as amended, is directed to a method of analyzing power modeling simulation for designing a chip, comprising the steps of obtaining a plurality of power value data from a power modeling simulator, generating a set of

summary data, and reporting the summary data as parameters for chip design. In this instant case, the Examiner relied on the same arguments as applied to claim 1 to reject claim 5. However, as set forth above, all of the cited paragraphs are directed to the simulator itself, not to any method of post-processing or analysis of the simulator output. Because Bogliodo does not teach or suggest all of the limitations of amended claim 5, claim 5 is patentable over Bogliodo. Dependent claims 6-8 and newly added claim 15 are also patentable over Bogliodo for at least the same reasons.

With regard to independent claim 10, the claim, as amended, is directed to a method of data analysis for a power modeling simulation comprising the steps of obtaining a plurality of power value data from the power modeling simulator, generating a set of summary data, analyzing the summary data according to a design requirement, and reporting a result of the analyzing step.

As set forth above, Bogliodo merely discloses a power modeling simulator. While Bogliodo discloses that the simulator is implemented in a web interface and that the simulator outputs power/current statistics, it does not show or suggest any method of data analysis for the simulator that processes the power/current statistics to generate a set of summary data as required by claim 10. Absent teachings of all limitations of claim 10, Bogliodo cannot be considered to anticipate the method of amended claim 10. Claim 10 is, therefore, patentable over Bogliodo. Dependent claims 11 – 13 and newly added claim 16 are also patentable over Bogliodo for at least the same reasons.

In view of the above, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 03226/073001; P5521).

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Respectfully submitted,

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